CLAIMS

1. An ink jet head comprising:

a plurality of ink chambers arranged like parallel grooves;

walls separating said multiple ink chambers;

driving electrodes provided on said walls, said driving electrodes being exposed individually in said multiple ink chambers;

external circuit connecting electrodes provided individually for said multiple ink chambers for connecting said driving electrodes to an external circuit; and

electrically conductive material filled in each of said multiple ink chambers;

wherein said external circuit connecting electrodes are individually formed on exposed surface regions at a rear end portion of the head where individual strips of said electrically conductive material are exposed, and the area of each of said exposed surface regions is made larger than the cross-sectional area of each of said multiple ink chambers as measured in a groove width direction.

2. The ink jet head as recited in claim 1, wherein said electrically conductive material is filled in partially deepened deep groove portions formed in said ink chambers at said rear end portion of the head.

3. The ink jet head as recited in claim 1, wherein said electrically conductive material is filled in partially widened wide grooves formed in said ink chambers at said rear end portion of the head.

4. The ink jet head as recited in claim 1, wherein said external circuit connecting electrodes are formed on said exposed surface regions of the electrically conductive material filled in filled in said ink chambers.

5. The ink jet head as recited in claim 1, wherein the area of each of the exposed surface regions of said electrically conductive material is at least 3960 μm^2.

6. An ink jet head comprising:

a plurality of ink chambers arranged like parallel grooves;

walls separating said multiple ink chambers;

driving electrodes provided on said walls, said driving electrodes being exposed individually in said multiple ink chambers;

external circuit connecting electrodes provided individually for said multiple ink chambers for connecting said driving electrodes to an external circuit; and

electrically conductive material filled in each of said multiple ink chambers;

wherein said external circuit connecting electrodes are individually formed on exposed surface regions at a rear end portion of the head where individual strips of said electrically conductive material are exposed, and the area of each of said exposed surface regions is made larger than the cross-sectional area of each of said multiple ink chambers as measured in a groove width direction; and

wherein each of said external circuit connecting electrodes formed on said exposed surface regions is electrically connected to said external circuit by at least 5 electrically conductive particles contained in anisotropic conductive material.

7. The ink jet head as recited in claim 6, wherein the area of each connecting part connected to said external circuit is made larger than the area of each of said external circuit connecting electrodes.

8. A method of manufacturing an ink jet head, said method comprising:

a process of forming a plurality of ink chambers at specific intervals in a piezoelectric material wafer of which piezoelectric properties have been oriented along a

thickness direction;

a process of forming partially deepened deep groove portions in said multiple ink chambers in individual regions thereof located at a rear end portion of the head;

a process of forming driving electrodes on walls separating said multiple ink chambers;

a process of filling electrically conductive material in said deep groove portions;

a process of curing said electrically conductive material;

a process of bonding said piezoelectric material wafer and a cover wafer; and

a process of dividing an assembly of said piezoelectric material wafer and said cover wafer which have been bonded together into small segments.

9. A method of manufacturing an ink jet head, said method comprising:

a process of forming a plurality of ink chambers at specific intervals in a piezoelectric material wafer of which piezoelectric properties have been oriented along a thickness direction;

a process of forming partially widened wide groove portions in said multiple ink chambers in individual regions thereof located at a rear end portion of the head;

a process of forming driving electrodes on walls separating said multiple ink chambers;

a process of filling electrically conductive material in said wide groove portions;

a process of curing said electrically conductive material;

a process of bonding said piezoelectric material wafer and a cover wafer; and

a process of dividing an assembly of said piezoelectric material wafer and said cover wafer which have been bonded together into small segments.

10. A method of manufacturing an ink jet head, said method being characterized by comprising:

a process of forming a plurality of ink chambers at specific intervals in a piezoelectric material wafer of which piezoelectric properties have been oriented along a thickness direction;

a process of forming driving electrodes on walls separating said multiple ink chambers;

a process of filling electrically conductive material in each of said multiple ink chambers in such a manner that said electrically conductive material connects to the driving electrodes on the inside of said multiple ink chambers;

a process of curing said electrically conductive material;

a process of bonding said piezoelectric material wafer and a cover wafer in such a manner that an empty space is formed on at least part of upper parts of said filled electrically conductive material; and

a process of dividing said bonded piezoelectric material wafer into small segments after removing at least part of the cover wafer above the upper parts of said electrically conductive material.